

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: Wayne Langel Examiner #: 60603 Date: 4-13-05
 Art Unit: 1754 Phone Number ~~30~~ 2-1353 Serial Number: 09/869650
 Mail Box and Bldg/Room Location: EO9A29 Results Format Preferred (circle) PAPER DISK E-MAIL
 (Remsen)

If more than one search is submitted, please prioritize searches in order of need.

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: Gas-generating material for gas-actuated car safety devices
 Inventors (please provide full names): Per Sjoberg

Earliest Priority Filing Date: 12-30-98

For Sequence Searches Only Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

Please search claims 1-8, 11 and 14-28, as attached hereto. Please note that the invention in its broadest sense is simply a composition comprising guanidine dinitramide and guanyl urea dinitramide (claim 4).

SCIENTIFIC REFERENCE BR
 Sci & Tech Inf - Cnt

APR 13 2005

Pat. & T.M. Office

STAFF USE ONLY

Type of Search

Vendors and cost where applicable

Searcher: 276

NA Sequence (#)

STN

Application No.: 09/869,650

Docket No.: 20459-00346-US

AMENDMENTS TO THE CLAIMS

1. (Previously Presented) Process for the preparation of car safety devices comprising providing a gas-actuated car safety device, and placing a pyrotechnical material comprising guanidine dinitramide and guanyl urea dinitramide as a gas-releasing composition in the car safety device.

2. (Previously Presented) Process according to Claim 1, wherein the guanyl urea dinitramide is present in an amount to adjust the rate of burn of the gas-releasing composition.

3. (Withdrawn) Process according to Claim 1 for recovering the said chemicals, guanidine dinitramide and guanyl urea dinitramide, wherein this is done by low-temperature crystallization from water at various temperatures.

4. (Withdrawn) Pyrotechnical gas-generating composition comprising guanidine dinitramide and guanyl urea dinitramide.

5. (Withdrawn) Pyrotechnical gas-generating composition according to Claim 4, wherein the guanidine dinitramide is present as the primary component, and the rate of burning of the gas-generating composition is regulated by the presence of a suitable amount of guanyl urea dinitramide.

6. (Withdrawn) Pyrotechnical gas-generating composition according to Claim 4, wherein the guanidine dinitramide comprises greater than 50% by weight of the gas-generating composition.

7. (Withdrawn) Pyrotechnical gas-generating composition according to Claim 4, wherein the gas-generating composition is in the form of pressed tablets containing a binder, the binder does not exceed 10 wt-%.

Application No.: 09/869,650

Docket No.: 20459-00346-US

8. (Withdrawn) Process according to Claim 2 for recovering the said chemicals, guanidine dinitramide and guanyl urea dinitramide, wherein this is done by low-temperature crystallization from water at various temperatures.

9.-10 (Canceled)

11. (Withdrawn) Pyrotechnical gas-generating composition according to Claim 5, wherein the guanidine dinitramide comprises greater than 50% by weight of the gas-generating composition.

12.-13 (Canceled)

14. (Previously Presented) The process according to claim 1, wherein the gas-releasing composition is in tablet form.

15. (Previously Presented) The process according to claim 1, wherein the gas-releasing composition is obtained from a previous car safety device, and is recrystallized to provide the gas-releasing composition.

16. (Previously Presented) The process according to claim 1, wherein the pyrotechnical material further comprises a binder, and the guanidine dinitramide comprises 20% to 80% by weight of the gas-releasing composition, not including the binder.

17. (Previously Presented) The process according to claim 1, wherein the pyrotechnical material further comprises a binder, and the guanidine dinitramide comprises 40% to 80% by weight of the gas-releasing composition, not including the binder.

18. (Previously Presented) The process according to claim 1, wherein the pyrotechnical material further comprises a binder, and the guanidine dinitramide comprises 40% to 60% by weight of the gas-releasing composition, not including the binder.

Application No.: 09/869,650

Docket No.: 20459-00346-US

19. (Withdrawn) The process according to claim 4, wherein the guanidine dinitramide comprises 20% to 80% by weight of the gas-releasing composition, not including binder.

20. (Withdrawn) The process according to claim 4, wherein the guanidine dinitramide comprises 40% to 80% by weight of the gas-releasing composition, not including binder.

21. (Withdrawn) The process according to claim 4, wherein the guanidine dinitramide comprises 40% to 60% by weight of the gas-releasing composition, not including binder.

22. (Currently Amended) The process according to claim 2, wherein the guanidine dinitramide is present as the primary component, and the ~~rate of burning of the gas-releasing composition is regulated by the~~ amount of guanyl urea dinitramide in the composition regulates the rate of burning of the composition.

23. (Previously Presented) The process according to claim 1, wherein the gas-releasing composition further comprises a binder, and the amount of binder does not exceed 10 wt%.

24. (Currently Amended) A process for the preparation of car safety devices comprising: providing a gas-actuated car safety device, and placing a pyrotechnical material comprising guanidine dinitramide and guanyl urea dinitramide as a gas-releasing composition in the car safety device, wherein the guanidine dinitramide is present as the primary component; and the ~~rate of burning of the gas-generating composition is regulated by the~~ amount of guanyl urea dinitramide in the composition regulates the rate of burning of the composition.

25. (Previously Presented) The process according to claim 24, wherein the pyrotechnical material further comprises a binder, and the guanidine dinitramide comprises 40% to 80% by weight of the gas-releasing composition, not including the binder.

26. (Previously Presented) The process according to claim 24, wherein the pyrotechnical material further comprises a binder, and the guanidine dinitramide comprises 40% to 60% by weight of the gas-releasing composition, not including the binder.

Application No.: 09/869,650

Docket No.: 20459-00346-US

27. (Currently Amended) The process according to claim 24, wherein the gas-releasing composition is obtained from a previous car safety device, and is was recrystallized to provide the gas-releasing composition.

28. (Previously Presented) The process according to claim 24, wherein the gas-generating composition is in the form of pressed tablets containing a binder, and the amount of binder does not exceed 10 wt%.

=> file reg

FILE 'REGISTRY' ENTERED AT 10:58:43 ON 21 APR 2005
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
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=> d his

FILE 'HCAPLUS' ENTERED AT 10:35:53 ON 21 APR 2005

L1 1480 S SJOBERG ?/AU OR SJOEBERG ?/AU
L2 85 S SJOBERG P?/AU OR SJOEBERG P?/AU
L3 356 S ?DINITRAMID?
L4 4 S L2 AND L3
SEL L4 1-4 RN

FILE 'REGISTRY' ENTERED AT 10:37:00 ON 21 APR 2005

L5 7 S E1-E7
SEL L5 1 RN
L6 1 S E8
SEL L5 2 RN
L7 1 S E9

FILE 'HCA' ENTERED AT 10:50:19 ON 21 APR 2005

L8 13 S L6
L9 16 S L7
L10 5 S L8 AND L9

FILE 'CAOLD' ENTERED AT 10:51:14 ON 21 APR 2005

L11 0 S L6
L12 0 S L7

FILE 'REGISTRY' ENTERED AT 10:51:21 ON 21 APR 2005

L13 1 S 114045-20-4
L14 177 S 114045-20-4/CRN
L15 1 S 141-83-3
L16 90 S 141-83-3/CRN
L17 1 S 113-00-8
L18 2469 S 113-00-8/CRN
L19 1 S 140456-79-7
L20 7 S 140456-79-7/CRN
L21 1 S 140456-78-6
L22 6 S 140456-78-6/CRN
L23 1 S (L20 OR L22 OR L14) AND L16
L24 0 S L23 NOT L6
L25 1 S (L20 OR L22 OR L14) AND L18

L26 0 S L25 NOT L7

FILE 'HCA' ENTERED AT 10:55:30 ON 21 APR 2005

L27 363 S L19 OR L21 OR L13

L28 323 S L15

L29 5037 S L17

L30 1 S L27 AND L28

L31 5 S L27 AND L29

L32 1 S L30 AND L31

L33 6 S L10 OR L32

=> file hca

FILE 'HCA' ENTERED AT 10:58:50 ON 21 APR 2005

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=> d l33 1-6 all hitstr

L33 ANSWER 1 OF 6 HCA COPYRIGHT 2005 ACS on STN

AN 138:126950 HCA

ED Entered STN: 20 Feb 2003

TI N,n-dinitramide salts as solubilizing agents for biologically active agents

IN Bottaro, Jeffrey C.; Petrie, Mark A.; Penwell, Paul E.; Bomberger, David C.

PA SRI International, USA

SO PCT Int. Appl., 41 pp.

CODEN: PIXXD2

DT Patent

LA English

IC ICM C01B021-20

ICS C07C243-00

CC 63-5 (Pharmaceuticals)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	----	-----	-----	
PI	WO 2003006371	A1	20030123	WO 2002-US21802	

200207
09

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH,
CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD,
GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ,

LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ,
NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ,
TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW, AM, AZ,
BY, KG, KZ, MD, RU, TJ, TM

RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE,
BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU,
MC, NL, PT, SE, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ,
GW, ML, MR, NE, SN, TD, TG

US 2003026850 A1 20030206 US 2001-905577

200107
13

US 6833478 B2 20041221

EP 1417153 A1 20040512 EP 2002-756424

200207
09

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC,
PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK

JP 2004534844 T2 20041118 JP 2003-512150

200207
09

PRAI US 2001-905577 A 20010713

WO 2002-US21802 W 20020709

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 2003006371	ICM	C01B021-20
	ICS	C07C243-00
US 2003026850	ECLA	A01N025/02; A61K047/02; A61K047/48H2; C07C211/32; C07D453/04
JP 2004534844	FTERM	4C076/AA11; 4C076/CC01; 4C076/CC11; 4C076/CC15; 4C076/CC16; 4C076/CC21; 4C076/DD21; 4C076/DD31; 4C076/DD49; 4C076/DD54; 4C076/DD60; 4C076/EE13; 4C076/FF15; 4C085/HH01; 4C085/JJ02; 4C085/KB01; 4C085/KB07; 4C085/KB32; 4C085/KB45; 4C085/KB49; 4C085/KB56; 4C085/KB68; 4H011/AB01; 4H011/BB09; 4H011/BB18

AB A method is provided for enhancing the soly. of an ionizable compd. in a lipophilic medium by admixing the compd. with an effective soly.-enhancing amt. of an N,N-dinitramide salt. The ionizable compd., upon ionization, gives rise to a biol. active cationic species that ionically assoc. with the N,N-dinitramide anion N(NO2)2 following admixt. with the N,N-dinitramide salt. The biol. active cationic species may be a pharmacol. active cation, in which case the method is useful for enhancing the penetration of the blood-brain barrier by the pharmacol. active cation. In other embodiments, the ionizable compds. are medical imaging or diagnostic agents, or agricultural agents such as pesticides. Salts of biol. active cations and N,N-dinitramide ion are also provided as novel

compns. of matter.

ST. dinitramide salt solubilizing agent drug blood brain barrier
penetration

IT Acaricides
Antibacterial agents
Blood-brain barrier
Drug delivery systems
Drugs
Fungicides
Imaging agents
Insecticides
Molluscicides
Nematocides
Rodenticides
Solubilizers
(N,N-dinitramide salts as solubilizing agents for biol. active
agents)

IT Diagnosis
(agents; N,N-dinitramide salts as solubilizing agents for biol.
active agents)

IT Pesticides
(avicides; N,N-dinitramide salts as solubilizing agents for biol.
active agents)

IT Insecticides
(larvicidal; N,N-dinitramide salts as solubilizing agents for
biol. active agents)

IT Pesticides
(ovicides, predicides, pupicides; N,N-dinitramide salts as
solubilizing agents for biol. active agents)

IT Pesticides
(toxicity, ovicides, predicides, pupicides; N,N-dinitramide salts
as solubilizing agents for biol. active agents)

IT 108-88-3, Toluene, uses 141-78-6, Ethyl acetate, uses 7732-18-5,
Water, uses 140456-77-5 **140456-78-6 140456-79-7**
154962-43-3 154962-44-4 160150-82-3 160150-86-7 162760-50-1
170515-95-4 211232-86-9 489472-28-8 489472-29-9 489472-30-2
489472-32-4 489472-33-5 489472-34-6 489472-35-7 489472-36-8
489472-37-9 489472-38-0 489472-39-1 489472-40-4 489472-41-5
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489472-62-0 489472-63-1 489472-64-2 489472-65-3 489472-66-4
489472-67-5 489472-68-6 489472-69-7 489472-70-0 489472-71-1
489472-72-2 489472-73-3 489472-74-4 489472-75-5 489472-76-6
(N,N-dinitramide salts as solubilizing agents for biol. active
agents)

IT 51-41-2, Norepinephrine 51-43-4, Epinephrine 51-61-6, Dopamine,

biological studies 51-67-2, Tyramine 54-49-9, Metaraminol 59-42-7, Phenylephrine 64-04-0, Benzeneethanamine 79-17-4D, Monoaminoguanidine, N,N-dinitramide compds. contg. 90-84-6, Diethylpropion 100-92-5, Mephentermine 101-40-6, Propylhexedrine 103-86-6, Hydroxyamphetamine 107-15-3D, Ethylenediamine, N,N-dinitramide compds. contg. 110-85-0D, Piperazine, N,N-dinitramide compds. contg. 113-00-8D, Guanidine, N,N-dinitramide compds. contg. 122-09-8, Phentermine 134-49-6, Phenmetrazine 141-83-3D, Guanyurea, N,N-dinitramide compds. contg. 156-08-1, Benzphetamine 288-37-9D, Furazan, N,N-dinitramide compds. contg. 288-94-8D, 1H-Tetrazole, N,N-dinitramide compds. contg. 299-42-3, Ephedrine 300-62-9, Amphetamine 390-28-3, Methoxamine 458-24-2, Fenfluramine 461-58-5D, Dicyandiamide, N,N-dinitramide compds. contg. 530-08-5, Isoetharine 536-24-3, Ethylnorepinephrine 586-06-1, Metaproterenol 634-03-7, Phendimetrazine 804-63-7, Quinine sulfate 1225-55-4 2203-24-9D, Triaminoguanidine, N,N-dinitramide compds. contg. 4364-78-7D, Diaminoguanidine, N,N-dinitramide compds. contg. 4418-61-5D, Aminotetrazole, N,N-dinitramide compds. contg. 6882-47-9D, Biguanidine, N,N-dinitramide compds. contg. 7683-59-2, Isoproterenol 14838-15-4, Phenylpropanolamine 18559-94-9D, Albuterol, sympathomimetic amine 18866-78-9, Colterol 23031-25-6, Terbutaline 23031-32-5, Terbutaline sulfate 26336-38-9D, Polyvinylamine, N,N-dinitramide compds. contg. 26652-09-5, Ritodrine 34368-04-2, Dobutamine 42794-76-3, Midodrine 57526-81-5, Prenalterol 66195-31-1, Ibopamine 67227-56-9 **114045-20-4D**, salts

(N,N-dinitramide salts as solubilizing agents for biol. active agents)

RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Bottaro; US 5198204 A 1993 HCA
- (2) Bottaro; US 5254324 A 1993 HCA
- (3) Schmitt; US 5316749 A 1994 HCA
- (4) Schmitt; US 5415852 A 1995 HCA

IT 140456-78-6 140456-79-7

(N,N-dinitramide salts as solubilizing agents for biol. active agents)

RN 140456-78-6 HCA

CN Nitramide, nitro-, ammonium salt (9CI) (CA INDEX NAME)

O₂N- NH- NO₂

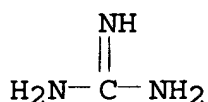
● NH₃

RN 140456-79-7 HCA
CN Nitramide, nitro-, potassium salt (9CI) (CA INDEX NAME)

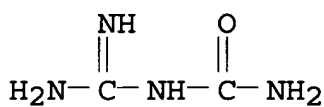


● K

IT 113-00-8D, Guanidine, N,N-dinitramide compds. contg.
141-83-3D, Guanylurea, N,N-dinitramide compds. contg.
114045-20-4D, salts
(N,N-dinitramide salts as solubilizing agents for biol. active agents)
RN 113-00-8 HCA
CN Guanidine (7CI, 8CI, 9CI) (CA INDEX NAME)



RN 141-83-3 HCA
CN Urea, (aminoiminomethyl)- (9CI). (CA INDEX NAME)



RN 114045-20-4 HCA
CN Nitramide, nitro- (9CI) (CA INDEX NAME)



L33 ANSWER 2 OF 6 HCA COPYRIGHT 2005 ACS on STN
AN 135:139394 HCA
ED Entered STN: 23 Aug 2001
TI Gas-generating composition for automobile airbags
IN Persson, Svante; Sjoqvist, Conny
PA Bofors BEPAB AB, Swed.
SO Swed., 15 pp.
CODEN: SSXXAY
DT Patent

LA Swedish
 IC ICM C06D005-06
 ICS C06B025-34; C01B021-082; B60R021-26
 CC 50-1 (Propellants and Explosives)
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	SE 514335	C2	20010212	SE 1998-4610	19981230
	SE 9804610	A	20000701		
PRAI	SE 1998-4610		19981230		

CLASS

	PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
	SE 514335	ICM	C06D005-06
		ICS	C06B025-34; C01B021-082; B60R021-26
AB	The gas-generating pyrotechnic compn. for airbags contains guanylureadinitramide 5-95, guanidine dinitramide .ltoreq.90, an O donor 5-50, and optionally a binder .ltoreq.10 wt.%. The O donor compd.(s) is(are) selected from groups of (1) nitrates, perchlorates, and permanganates of alkali metals, (2) oxides of Fe, Ni, Co, and Mn, and (3) oxides of transition metals.		
ST	propellant automobile airbag; gas generator airbag		
IT	Gas generators		
	Propellants (fuels)		
	(for automobile airbags)		
IT	Airbags (protective)		
	(gas-generating compn. for)		
IT	Transition metal oxides		
	(in gas-generating compn. for automobile airbags)		
IT	1313-99-1, Nickel oxide, uses 1332-37-2, Iron oxide, uses 7601-90-3D, Perchloric acid, alkali metal salt, uses 7697-37-2D, Nitric acid, alkali metal salt, uses 11104-61-3, Cobalt oxide 11129-60-5, Manganese oxide 13465-41-3D, Permanganic acid, alkali metal salt 170515-96-5 217464-38-5		
	(in gas-generating compn. for automobile airbags)		
IT	170515-96-5 217464-38-5		
	(in gas-generating compn. for automobile airbags)		
RN	170515-96-5 HCA		
CN	Guanidine, compd. with nitronitramide (1:1) (9CI) (CA INDEX NAME)		

CM 1

CRN 114045-20-4

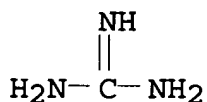
CMF H N3 O4



CM 2

CRN 113-00-8

CMF C H5 N3



RN 217464-38-5 HCA

CN Urea, (aminoiminomethyl)-, compd. with nitronitramide (1:1) (9CI)
(CA INDEX NAME)

CM 1

CRN 114045-20-4

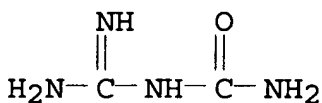
CMF H N3 O4



CM 2

CRN 141-83-3

CMF C2 H6 N4 O



L33 ANSWER 3 OF 6 HCA COPYRIGHT 2005 ACS on STN

AN 134:6642 HCA

ED Entered STN: 21 Dec 2000

TI Guanyl urea dinitramide-based solid propellants with adjustable
burning rate for vehicle airbag inflation

IN Persson, Svante; Sjoqvist, Conny

PA Bofors Bepab AB, Swed.

SO PCT Int. Appl., 26 pp.

CODEN: PIXXD2

DT Patent

LA English
 IC ICM C06D005-06
 ICS C06B025-34
 CC 50-3 (Propellants and Explosives)
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2000069792	A1	20001123	WO 2000-SE864	20000504
	W: JP, US				
	RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	SE 9901726	A	20001113	SE 1999-1726	19990512
	SE 514336	C2	20010212		
	EP 1194392	A1	20020410	EP 2000-930020	20000504
	EP 1194392	B1	20040811		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
	ES 2223518	T3	20050301	ES 2000-930020	20000504
	US 6764562	B1	20040720	US 2001-959945	20011113
	US 2004231768	A1	20041125	US 2004-805223	20040322
PRAI	SE 1999-1726	A	19990512		
	WO 2000-SE864	W	20000504		
	US 2001-959945	A3	20011113		

CLASS

	PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
	WO 2000069792	ICM	C06D005-06
		ICS	C06B025-34
	WO 2000069792	ECLA	C06B025/34; C06D005/06
	US 6764562	ECLA	C06B025/34; C06D005/06
	US 2004231768	ECLA	C06B025/34; C06D005/06
AB	Hybrid gas-generating materials for gas-actuated safety devices (esp. vehicle occupant airbags) consists of 5-95 wt.% guanidyl urea dinitramide, 5-50 wt.% of an oxidant (based on total amt. of solids), and, if necessary, 0-90 wt.% guanidine dinitramide, <10		

wt.% of finely divided boron, and <10 wt.% binder. Oxidizers are typically selected from (1) alkali metal nitrates, perchlorates, and permanganates, (2) manganese-group metal oxides (e.g., oxides of Fe, Ni, and Co), and (3) Groups 7-12 transition metal oxides. These compns. are characterized by low pollutant emissions, low smoke formation, and adjustable burning rate.

- ST safety device airbag gas generator; pyrotechnic vehicle airbag inflation; propellant vehicle airbag inflation; guanyl urea dinitramide airbag propellant; guanidine dinitramide airbag propellant
- IT Group VIII element compounds
(Group 10, oxides, oxidants, airbag propellants contg.; guanyl urea dinitramide-based solid propellants with adjustable burning rate for vehicle airbag inflation)
- IT Group VIII elements
(Group 9, oxides, oxidants, airbag propellants contg.; guanyl urea dinitramide-based solid propellants with adjustable burning rate for vehicle airbag inflation)
- IT Airbags (protective)
(guanyl urea dinitramide-based solid propellants with adjustable burning rate for vehicle airbag inflation)
- IT Group VIII elements
(iron-group, oxides, oxidants, airbag propellants contg.; guanyl urea dinitramide-based solid propellants with adjustable burning rate for vehicle airbag inflation)
- IT Group IB element compounds
Group IIB element compounds
Group VIIB element compounds
(oxides, oxidants, airbag propellants contg.; guanyl urea dinitramide-based solid propellants with adjustable burning rate for vehicle airbag inflation)
- IT Propellants (fuels)
(solid; guanyl urea dinitramide-based solid propellants with adjustable burning rate for vehicle airbag inflation)
- IT 7440-42-8, Boron, uses 170515-96-5, Guanidine, compd. with nitronitramide (1:1) 217464-38-5, Urea, (aminoiminomethyl)-, compd. with nitronitramide (1:1)
(airbag propellants contg.; guanyl urea dinitramide-based solid propellants with adjustable burning rate for vehicle airbag inflation)
- IT 1313-99-1, Nickel oxide (NiO); uses 1332-37-2, Iron oxide, uses 7757-79-1, Potassium nitrate, uses 7778-74-7, Potassium perchlorate 11104-61-3, Cobalt oxide
(oxidant, airbag propellants contg.; guanyl urea dinitramide-based solid propellants with adjustable burning rate for vehicle airbag inflation)
- IT 7601-90-3D, Perchloric acid, alkali metal salts, uses 7697-37-2D, Nitric acid, alkali metal salts, uses 13465-41-3D, Permanganic

acid, alkali metal salts
(oxidants, airbag propellants contg.; guanyl urea
dinitramide-based solid propellants with adjustable burning rate
for vehicle airbag inflation)

RE.CNT 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE

- (1) Bofors Bepab Ab; SE 98046105 A 2000
- (2) Dynamit Nobel Aktiengesellschaft; GB 1126567 A 1968
- (3) Dynamit Nobel Aktiengesellschaft; GB 1210461 A 1970 HCA
- (4) Dynamit Nobel Aktiengesellschaft; GB 1313619 A 1973 HCA
- (5) FORSvarets Forskningsanstalt; WO 9855428 A1 1998 HCA
- (6) Sebel & Company Limited; GB 943991 A 1963
- (7) Thiokol Corporation; EP 0012626 A1 1980 HCA

IT 170515-96-5, Guanidine, compd. with nitronitramide (1:1)
217464-38-5, Urea, (aminoiminomethyl)-, compd. with
nitronitramide (1:1)
(airbag propellants contg.; guanyl urea dinitramide-based solid
propellants with adjustable burning rate for vehicle airbag
inflation)

RN 170515-96-5 HCA

CN Guanidine, compd. with nitronitramide (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 114045-20-4

CMF H N3 O4

O₂N-NH-NO₂

CM 2

CRN 113-00-8

CMF C H5 N3

NH
||
H₂N-C-NH₂

RN 217464-38-5 HCA

CN Urea, (aminoiminomethyl)-, compd. with nitronitramide (1:1) (9CI)
(CA INDEX NAME)

CM 1

CRN 114045-20-4

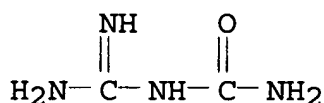
CMF H N3 O4

O₂N-NH-NO₂

CM 2

CRN 141-83-3

CMF C2 H6 N4 O



L33 ANSWER 4 OF 6 HCA COPYRIGHT 2005 ACS on STN
 AN 133:195583 HCA
 ED Entered STN: 22 Sep 2000
 TI Guanylurea dinitramide-based gas-generating compositions for
 inflation of vehicle airbags
 IN Blomquist, Harold R.
 PA TRW Inc., USA
 SO U.S., 9 pp., Cont.-in-part of U.S. Ser. No. 123,821.
 CODEN: USXXAM
 DT Patent
 LA English
 IC ICM C06B047-08
 ICS C06B031-00
 NCL 149036000
 CC 50-1 (Propellants and Explosives)
 FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	----	-----	-----	
PI	US 6117255	A	20000912	US 1999-359248	199907 22
	US 6004410	A	19991221	US 1998-123821	199807 28
	DE 10034287	A1	20010222	DE 2000-10034287	200007 14
	DE 10034287	C2	20020711		
PRAI	US 1998-123821	A2	19980728		
	US 1999-359248	A	19990722		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 6117255	ICM	C06B047-08
	ICS	C06B031-00
	NCL	149036000
US 6117255	ECLA	C06B025/34; C06D005/06
US 6004410	ECLA	C06B025/34; C06D005/06
DE 10034287	ECLA	C06B025/34; C06D005/06
AB	Gas-generating compns. esp. for use in inflation of vehicle occupant protection devices (i.e., automobile airbags) consist of an oxidizer, a binder, and guanylurea dinitramide fuel. Preferred compns. are guanylurea dinitramide 40-90, oxidizer 10-60, and binder 0-10 wt.%. The oxidizers are selected from ammonium nitrate, potassium nitrate, potassium perchlorate, ammonium perchlorate, metal oxides, and metal complexes.	
ST	vehicle airbag inflation guanylurea dinitramide; guanidinium dinitramide airbag inflation; propellant guanylurea dinitramide vehicle airbag; gas generator guanylurea dinitramide vehicle airbag	
IT	Styrene-butadiene rubber, uses (binders; guanylurea dinitramide-based gas-generating compns. for inflation of vehicle airbags)	
IT	Airbags (protective) (guanylurea dinitramide-based gas-generating compns. for inflation of vehicle airbags)	
IT	Coordination compounds (metal complexes, oxidizers; guanylurea dinitramide-based gas-generating compns. for inflation of vehicle airbags)	
IT	Oxides (inorganic), uses (oxidizers; guanylurea dinitramide-based gas-generating compns. for inflation of vehicle airbags)	
IT	Propellants (fuels) (solid; guanylurea dinitramide-based gas-generating compns. for inflation of vehicle airbags)	
IT	77-94-1, Tributyl citrate 9004-36-8, Cellulose acetate butyrate (binder; guanylurea dinitramide-based gas-generating compns. for inflation of vehicle airbags)	
IT	140456-75-3, Tetramethylammonium dinitramide 165603-96-3, 1,2-Ethanediamine, compd. with nitronitramide (1:2) 170515-96-5, Guanidine, compd. with nitronitramide (1:1) 217464-38-5, Urea, (aminoiminomethyl)-, compd. with nitronitramide (1:1) 252062-62-7, 1,2-Hydrazinedicarboximidamide, compd. with nitronitramide (1:1) 252062-63-8, Piperazine, compd. with nitronitramide (1:2) (fuel component; guanylurea dinitramide-based gas-generating compns. for inflation of vehicle airbags)	
IT	114045-20-4D, Nitramide, nitro-, salts (fuel components; guanylurea dinitramide-based gas-generating	

compns. for inflation of vehicle airbags)

IT 6484-52-2, Ammonium nitrate, uses 7757-79-1, Potassium nitrate, uses 7778-74-7, Potassium perchlorate 7790-98-9, Ammonium perchlorate (oxidizer; guanylurea dinitramide-based gas-generating compns. for inflation of vehicle airbags)

IT 9003-55-8 (styrene-butadiene rubber, binders; guanylurea dinitramide-based gas-generating compns. for inflation of vehicle airbags)

RE.CNT 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Bemm; FOA Defence Research Establishment

(2) Canterbury; US 6019861 2000 HCA

(3) Hamilton; US 5868424 1999

(4) Highsmith; US 5292387 1994 HCA

(5) Hinshaw; US 5498303 1996 HCA

(6) Hinshaw; US 5741998 1998 HCA

(7) Lundstrom; US 5962808 1999 HCA

(8) Sampson; US 5324075 1994

IT 170515-96-5, Guanidine, compd. with nitronitramide (1:1) 217464-38-5, Urea, (aminoiminomethyl)-, compd. with nitronitramide (1:1) (fuel component; guanylurea dinitramide-based gas-generating compns. for inflation of vehicle airbags)

RN 170515-96-5 HCA

CN Guanidine, compd. with nitronitramide (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 114045-20-4

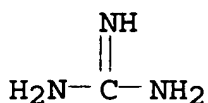
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O₂N-NH-NO₂

CM 2

CRN 113-00-8

CMF C H5 N3



RN 217464-38-5 HCA

CN Urea, (aminoiminomethyl)-, compd. with nitronitramide (1:1) (9CI)

(CA INDEX NAME)

CM 1

CRN 114045-20-4

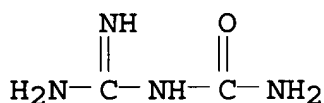
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CM 2

CRN 141-83-3

CMF C2 H6 N4 O



L33 ANSWER 5 OF 6 HCA COPYRIGHT 2005 ACS on STN

AN 133:76163 HCA

ED Entered STN: 28 Jul 2000

TI Guanidine dinitramide-guanylurea dinitramide mixture for acutention of vehicle safety devices

IN Sjoberg, Per

PA Nexplo Bofors AB, Swed.

SO PCT Int. Appl., 16 pp.

CODEN: PIXXD2

DT Patent

LA English

IC ICM C06D005-06

ICS C06B025-34; C01B021-082; B60R021-26

CC 50-1 (Propellants and Explosives)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2000040523	A1	20000713	WO 1999-SE2496	19991229

W: US

RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE

SE 9804611 A 20000701 SE 1998-4611

199812

SE 513315	C2	20000821		30
EP 1171403	A1	20020116	EP 1999-965701	
				199912
				29
EP 1171403	B1	20030416		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
AT 237567	E	20030515	AT 1999-965701	
				199912
				29
ES 2197707	T3	20040101	ES 1999-965701	
				199912
				29
US 2004154711	A1	20040812	US 2004-772246	
				200402
				06
PRAI SE 1998-4611	A	19981230		
WO 1999-SE2496	W	19991229		
US 2001-869650	A3	20011015		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
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WO 2000040523	ICM	C06D005-06
	ICS	C06B025-34; C01B021-082; B60R021-26
WO 2000040523	ECLA	C06B025/34; C06D005/06
US 2004154711	ECLA	C06B025/34; C06D005/06
AB	The fabrication of gas-actuated car safety devices, from which the chems. have been recovered when the device's normal service life has expired, uses a mixt. of guanidine dinitramide and guanylurea dinitramide as the gas-generating compn., which is recovered by low-temp. crystn. from water. The mixts. contain >50 wt.% guanidine dinitramide. Such gas-actuated safety devices include air bags, safety-belt tighteners, inflatable neck supports, etc.	
ST	vehicle airbag actuation guanylurea guanidine dinitramide; safety device actuation guanidine nitramide	
IT	Safety devices (gas-actuated, in vehicles; guanidine dinitramide-guanylurea dinitramide mixt. for acutation of vehicle safety devices)	
IT	Airbags (protective) (guanidine dinitramide-guanylurea dinitramide mixt. for acutation of vehicle safety devices)	
IT	Propellants (fuels) (solid; guanidine dinitramide-guanylurea dinitramide mixt. for acutation of vehicle safety devices)	
IT	170515-96-5P, Guanidine, compd. with nitronitramide (1:1) 217464-38-5P, Urea, (aminoiminomethyl)-, compd. with nitronitramide (1:1)	

(guanidine dinitramide-guanylurea dinitramide mixt. for acutaton
of vehicle safety devices)

RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE

- (1) D Sebel & Company Limited; GB 943991 A 1963
- (2) Dynamit Nobel Aktiengesellschaft; GB 1126567 A 1968
- (3) Dynamit Nobel Aktiengesellschaft; GB 1210461 A 1970 HCA
- (4) Dynamit Nobel Aktiengesellschaft; GB 1313619 A 1973 HCA
- (5) Forsvarets Forskningsanstalt; WO 9855428 A1 1998 HCA

IT 170515-96-5P, Guanidine, compd. with nitronitramide (1:1)
217464-38-5P, Urea, (aminoiminomethyl)-, compd. with
nitronitramide (1:1)

(guanidine dinitramide-guanylurea dinitramide mixt. for acutaton
of vehicle safety devices)

RN 170515-96-5 HCA

CN Guanidine, compd. with nitronitramide (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 114045-20-4

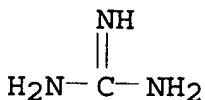
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O₂N-NH-NO₂

CM 2

CRN 113-00-8

CMF C H5 N3



RN 217464-38-5 HCA

CN Urea, (aminoiminomethyl)-, compd. with nitronitramide (1:1) (9CI)
(CA INDEX NAME)

CM 1

CRN 114045-20-4

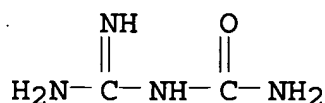
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O₂N-NH-NO₂

CM 2

CRN 141-83-3

CMF C2 H6 N4 O



L33 ANSWER 6 OF 6 HCA COPYRIGHT 2005 ACS on STN
 AN 131:216198 HCA
 ED Entered STN: 08 Oct 1999
 TI Manufacture of dinitramide salts for propellants
 IN Latypov, Nikolai; Langlet, Abraham
 PA Forsvarets Forskningsanstalt, Swed.
 SO PCT Int. Appl., 10 pp.
 CODEN: PIXXD2
 DT Patent
 LA English
 IC ICM C01B021-082
 ICS C06B025-34
 CC 50-1 (Propellants and Explosives)
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	----	-----	-----	
PI	WO 9946202	A1	19990916	WO 1999-SE308	19990303
W:	AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW:	GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	SE 9800770	A	19990911	SE 1998-770	19980310
	SE 511675	C2	19991108		
	AU 9927566	A1	19990927	AU 1999-27566	19990303

PRAI SE 1998-770 A 19980310
 WO 1999-SE308 W 19990303

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 9946202	ICM	C01B021-082
	ICS	C06B025-34
WO 9946202	ECLA	C01B021/082; C01B021/087; C06B031/00

AB The invention relates to a method of producing org. dinitramide salts, for instance, guanidine dinitramide and guanylurea dinitramide starting from ammonium dinitramide (ADN). A concd. aq. soln. of ADN is reacted with a concd. aq. soln. of an org. salt, whose anion is OH- or CO32- which is capable of taking up a proton from the ammonium ion of ADN and transferring said ion to ammonia. The formed byproducts, i.e. ammonia and possibly carbonic acid, are driven off from the soln., as well as a certain amt. of water to maintain a concd. soln. The org. dinitramide salt is then pptd., for instance by cooling the soln. The method can be carried out as a continuous or semicontinuous process in a reactor, to which concd. aq. solns. of ADN and org. salt, resp., are supplied in equimol. amts. The soln. is transferred from the reactor to a pptn. tank where org. dinitramide salt is pptd. and a supernatant is recirculated to the reactor.

ST dinitramide salt manuf propellant compn; ammonium dinitramide propellant compn manuf app; guanylurea dinitramide manuf propellant compn; guanidine dinitramide manuf propellant compn

IT Propellants (fuels)
 (manuf. of dinitramide salts for propellants)

IT 170515-96-5P 217464-38-5P
 (manuf. of dinitramide salts for propellants)

IT 100224-74-6, Guanidine carbonate
 (manuf. of dinitramide salts for propellants)

IT 140456-78-6
 (manuf. of dinitramide salts for propellants from)

RE.CNT 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Forskningsanstalt, F; WO 9706099 A1 1997 HCA

(2) Schmitt, R; US 5415852 A 1995 HCA

IT 170515-96-5P 217464-38-5P
 (manuf. of dinitramide salts for propellants)

RN 170515-96-5 HCA

CN Guanidine, compd. with nitronitramide (1:1) (9CI) (CA INDEX NAME)

CM 1

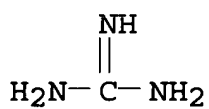
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CM 2

CRN 113-00-8

CMF C H5 N3



RN 217464-38-5 HCA

CN Urea, (aminoiminomethyl)-, compd. with nitronitramide (1:1) (9CI)
(CA INDEX NAME)

CM 1

CRN 114045-20-4

CMF H N3 O4



CM 2

CRN 141-83-3

CMF C2 H6 N4 O

